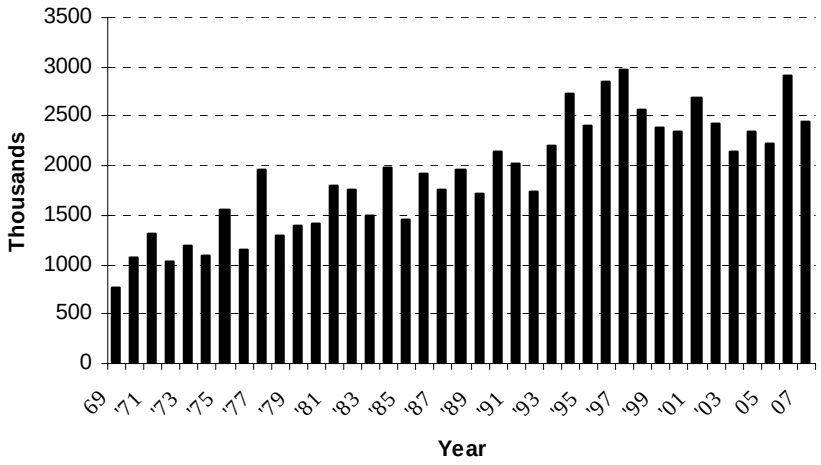
Light Geese:
The term light geese includes snow (blue and white color phase) and Ross's geese. The Mid-Continent Population (MCP) of light geese includes breeding colonies on Baffin and South Hampton Island and along the west coast of Hudson Bay. This population is the primary source of lesser snow geese present in Missouri during fall through winter. However, light geese from throughout the arctic are present especially during spring migration. Although lesser snow geese are more common, increasing numbers of Ross's geese have been noted in Missouri and the Mississippi Flyway in recent years. This appears to be due to higher numbers of Ross's geese throughout their range plus Ross's geese have expanded their breeding range into the eastern arctic. Slightly warmer than average (4-5° C) temperatures during early spring in the eastern arctic is expected to result in average to above average production in that area. Harsh weather and later than average nesting may affect production along portions of the west coast of Hudson Bay. Observers on South Hampton Island reported that nest initiation was about average, but as of late July, field crews were not yet present to confirm expected conditions. Based upon limited information, overall production of light geese is expected to be about average in 2008, but with a higher proportion of young in the fall flight compared to 2007.

Figure 10. Midwinter survey estimates of the Mid-Continent Population of light geese: 1969-2008.



The 2007-08 Midwinter Waterfowl Survey resulted in an estimate of 2.4 million MCP light geese, which is 16% fewer than the previous year (Figure 10). After peaking at nearly 3 million in 1998, numbers of the MCP light geese have been variable, but generally stable.

2008-09 WATERFOWL SEASON FRAMEWORKS

Broad frameworks of waterfowl hunting dates, season lengths, and bag limits are developed by the U.S. Fish and Wildlife Service in cooperation with states from each of the 4 flyways – Atlantic, Mississippi (including Missouri), Central, and Pacific. A series of technical meetings, administrative review, and public comment are documented in the Federal Register and provide a forum for biological and social considerations. The result of this regulations process is a general waterfowl season framework within which states select specific season dates. All states within each flyway share a common framework of season length and bag limits. Missouri's basic season

structure is the same as the 14 Mississippi Flyway states from Minnesota in the North to Louisiana in the South. States can recommend a season more restrictive but no more liberal than the federal framework.

Adaptive Harvest Management:
AHM is a process first implemented in 1995, that provides a framework for making harvest regulation decisions with incomplete knowledge of mallard population dynamics (e.g., response to harvest and habitat) and the role of certain environmental variables (e.g., wetland conditions). Development of regulations under AHM requires agreeing on a harvest management objective and a limited number of regulations options (currently 3 packages), and formulating specific models of relationships between harvest and populations (Table 6).

A continuing challenge for AHM is to incorporate other species into the AHM decision-making process. Presently, the AHM protocol is based solely upon the status of mid-continent mallards. Harvest regulations for other species below management objective levels occur through other provisions, such as limiting the number of days within the overall season framework. The waterfowl management community is beginning to question if these provisions provide adequate regulation of harvest for species such as pintail, black duck, canvasback, and scaup.

For the 12th consecutive year, in 2008, the AHM models call for a 60-day season with a 6-duck daily bag limit. Although wetland conditions deteriorated, mallard numbers remained near their long-term average and will support a full 60-day season. For more specific information about Adaptive Harvest Management refer to the U.S. Fish and Wildlife Service website at: http://migratorybirds.fws.gov/mgmt/ahm/ahm-intro.htm

Table 6. Duck season options in the Mississippi Flyway .

Regulation	Restrictive	Moderate	Liberal
Season Length	30 days	45 days	60 days
Duck Bag Limit	3 ducks	6 ducks	6 ducks
Mallard Bag Limit (females)	2 (1)	4 (1)	4 (2)

* A closed season is an option each year.

Canvasbacks:
Canvasbacks are among the least abundant of the "major" duck species. Because of their historically low numbers, canvasback regulations have been more conservative than for most other duck species. The season on canvasback was closed during 2002, a 20-day season was in effect during 2001 and a 30-day canvasback season was in place three out of the last five years. The 2007 estimate of 864,900 was the highest recorded since 1955, and resulted in the US Fish and Wildlife Service offering a 2-bird bag limit for the first time in recent years. The 2008 population estimate of 488,700 represents a 44% decline from 2007. This large decline cannot be explained by harvest (132,500 continental harvest for 2007) and was more likely the result of imprecise population estimates in 2007 and 2008 of a species that is of low abundance. The harvest management strategy for canvasbacks is to maintain a spring breeding population of at least 500,000. The spring 2008 population estimate of 488,700 will not support an open season

and achieve a spring breeding population of 500,000. Therefore, the canvasback season will be closed during fall 2008.

Pintails:
The 2008 population estimate of 2.6 million is 22% lower than the 2007 estimate and 36% below the long-term average. However, a recent analysis concluded that during drought years pintails often over fly the prairies and settle further north outside of traditionally surveyed areas. When these "over flights" occur, the estimates from traditional survey areas tend to underestimate actual populations. This year, an over flight –bias-corrected breeding population estimate resulted in a revised estimate of 4.24 million pintails, with a fall flight estimate of 4.47 million pintails. Therefore, the pintail harvest strategy calls for a full season 1-bird bag.

Scaup:
Scaup have not recovered from a long-term decline that began in the 1970s. The spring 2008 breeding population estimate of 3.7 million is similar to last year (+ 8%) but remains 27% below the long-term average. Although the decline is believed to be the result of landscape-scale changes, an assessment by the USFWS indicated that their reduced population size can no longer sustain the harvest rates of previous years. Under the USFWS Scaup Harvest Strategy, the allowable harvest for scaup during 2008 will be 160,000 for the U.S. and 83,000 for the Mississippi Flyway. A two-bird bag is expected to exceed the allowable harvest; therefore, the federal framework allows for a 60 day season that may include 20 days with a 2-bird bag limit and 40 days with a 1-bird bag limit.

Canada Goose Season Framework:
The goal of Canada goose management is to balance population levels of EPP and giant Canada geese in a manner that will provide opportunity for hunting and viewing, while minimizing negative interactions between Canada geese and the public. Current objectives for EPP Canada geese call for maintaining a two-year running average population of EPP geese, represented as singles and pairs, of at least 75,000 birds (previously a single-year estimate of 145,000) as measured by the annual breeding ground survey. The harvest management plan will be implemented according to the following strategies and population thresholds:

When the two-year running average breeding ground estimate of singles and pairs is above 75,000: Implement regulations that allow for a 25% increase in EPP harvests in Manitoba, Minnesota, Missouri, Iowa, and Arkansas, compared to 2001-2003 and 2005.

When the two-year running average breeding ground estimate of singles and pairs is between 50,000 and 75,000: Implement regulations that will result in a return to harvest levels similar to 2001-2003 and 2005 in EPP states/province that account for over 5% of the EPP harvest until the two-year average breeding ground estimate of singles and pairs reaches or exceeds 90,000.

When a single-year breeding ground estimate of singles and pairs falls below 50,000: Implement regulations that will result in an additional 25% reduction in EPP harvests in EPP

states/province that account for over 5% of the EPP harvest until the two-year average breeding population of singles and pairs reaches or exceeds 90,000.

Missouri and other EPP states/province implemented changes in 2006-07 to provide more opportunity and to evaluate the potential of this buffering effect. Beginning in 2006, the number of days available for Missouri goose hunters increased from 77 to 79 days, and Missouri is no longer required to limit the number of days allowed between December 1 and January 31. These changes provide hunters with more concurrent late season duck and goose hunting days, additional opportunity in January when more migrant Canada geese are present, simplified Canada goose regulations (e.g., no zones and the elimination of the third season segment), and an additional weekend of hunting. The early season segment will continue to be offered to target resident giant Canada geese. The first segment of at least 9 days prior to 16 October includes a bag limit of three, and during the remainder of the season, a bag limit of two.

White-Fronted Geese:
Mid-Continent Population (MCP) white-fronted geese are managed under cooperative agreements between the Central, Mississippi, and Pacific Flyways. More liberal white-fronted goose regulations from 1999-2004 and increased incidental harvest of white-fronted geese associated with liberal duck seasons are thought to have contributed to a dramatic decline in numbers of white-fronted geese from over 1 million during fall 2000 to 522,800 during fall 2003. As a result, beginning in 2005 states in the western three flyways implemented more restrictive regulations followed by the Canadian provinces during 2006. Harvest regulations are based on a three-year running average. The 2007 survey resulted in a new 3-year (2005-2007) average of 679,300 which is 6% above the previous mean of 639,400. Regulations options for states include a choice of either 72 days with a 2-bird bag limit, or 86 days with a 1-bird bag limit.

Conservation Order:
A light goose Conservation Order will remain in place during spring 2009. The USFWS implemented the Conservation Order to reduce numbers of snow and Ross's geese, because they have rapidly increased in number and are causing damage to portions of the fragile arctic tundra. The Conservation Order will be in effect through April 30, 2009. Lesser snow (white and blue color phase) and Ross's geese may be taken with the use of electronic calls, unplugged shotguns, and shooting until ½ hour after sunset**.** A valid Missouri Migratory Bird Hunting Permit ($6) is the only permit needed for residents and nonresidents during the Conservation Order. A federal duck stamp is not required and there is no bag limit during the Conservation Order.

Youth Waterfowl Hunting Days:
In 1996-1997, the U.S. Fish and Wildlife Service implemented a youth waterfowl hunting day (in addition to regular hunting season days) for youths who are 15 years of age or younger. A 2-day rather than a single-day season was provided beginning in fall 2000 and again will be offered this fall. The youth hunting days incorporate a weekend or holidays up to 14 days before or after the regular season. The bag limit is the same as during the regular season and includes ducks and geese. Youth must be accompanied by an adult who is not allowed to hunt ducks but who can participate in other open seasons. No permits are required for youth hunters. Nonhunting adults must be licensed with at least a small game license unless the youth hunter possesses a valid hunter education certificate card.